SCCSID = levee_spg_input.man v1.1 02/19/03

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|       D R A F T     D R A F T     D R A F T     D R A F T     D R A F T     D R A F T     D R A F T     D R A F T     |
|----------------------------------------------------------------------------------------|
|                                                                                        |
|                                                                                        |
|                          SOUTH FLORIDA WATER MANAGEMENT MODEL V5.0                      |
|                                INPUT FILE DOCUMENTATION                                 |
|                                                                                        |
|                                  "levee_spg_input.dat"                                  |
|                                                                                        |
|                                                                                        |
|                                                                                        |
|           SPECIFICATION FILE FOR COMPUTATION OF LOCALIZED SEEPAGE UNDERNEATH LEVEES     |
|                 AND DEFINITION OF GROUNDWATER CURTAIN WALL COMPONENTS                   |
|                                                                                        |
|                     INPUT FILE UNIT NO. 104 IS READ IN SUBROUTINE CNLDATA.F             |
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   COLS.        VARIABLE_NAME            FORMAT     DESCRIPTION
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1. NUMBER OF LEVEES AND CORRESPONDING NAMES

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   RECORD 1: FORMAT(I5,2X,20(A5,1X))
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   1-5       nlevs                      I5     total number of levees simulated in model
   6-7       blank                      2X

      ***  NOTE: THE FOLLOWING TWO FIELDS ARE REPEATED ON THE SAME RECORD FOR EACH LEVEE (i=1,nlevs)  ***

   8-12      rlist_lvname(i=1)          A5     levee name
   13        blank                      1X
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2. LEVEE DEFINITIONS

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      ***  NOTE: INPUT IN THIS SECTION IS REPEATED SEQUENTIALLY FOR EACH LEVEE (k=1,nlevs)  ***

   RECORD 1: FORMAT(5X,A5)
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   1-5       blank                          5X
   6-7       lvname(k)                      A5      name of levee


   RECORD 2: FORMAT(I5,5F7.2)
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      ***  NOTE: kk IS SET TO INDEX OF lvname(k) IN rlist_lvname 1-D ARRAY  ***


   1-5       lvnodes(kk)                    I5      number of levee segments
   6-12      srate(kk,1)                    F7.2    B1 coefficient in levee seepage equation
   13-19     srate(kk,2)                    F7.2    B2 coefficient in levee seepage equation
   20-26     srate(kk,3)                    F7.2    B0 coefficient in levee seepage equation
   27-33     srate_frac(kk)                 F7.2    fraction of levee seepage rate applied
   34-40     rate_limit(kk)                 F7.2    maximum levee seepage rate
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| NOTE: LEVEE SEEPAGE (CFS/MILE/FT.HEAD DIFF) = B1*H1 + B2*H2 + B0 |
| |
| H1 = HEAD DIFFERENCE BETWEEN BORROW CANAL ON APPROPRIATE SIDE OF LEVEE AND ADJACENT GRID CELL ON THE |
| OTHER SIDE OF LEVEE |
| H2 = HEAD DIFFERENCE BETWEEN ADJACENT GRID CELL ON ONE SIDE OF LEVEE AND ADJACENT GRID CELL ON THE |
| OTHER SIDE OF LEVEE |
| |
| IF NO BORROW CANAL EXISTS ON EITHER SIDE OF LEVEE, THEN |
| H1 = HEAD DIFFERENCE BETWEEN ADJACENT GRID CELL ON ONE SIDE OF LEVEE AND ADJACENT GRID CELL ON THE |
| OTHER SIDE OF LEVEE ; B2=0 ; B0=0 |
| |
| B1, B2, AND B0 ARE COEFFICIENTS OF REGRESSION EQUATION GENERATED BY SEEPN PROGRAM AND THEN ADJUSTED IN |
| CALIBRATION PROCESS |
| |

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   RECORD 3: FORMAT(3I4,2X,A5,2X,A5,1X,3I4)
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| NOTE: INPUT FOR RECORDS 3-5 IS REPEATED SEQUENTIALLY FOR EACH SEGMENT IN LEVEE (il=1,lvnodes(kk)). |
| l IS SET TO 1 FOR 1ST SEGMENT OF 1ST LEVEE AND INCREMENTED BY 1 FOR EACH ADDITIONAL SEGMENT |
| IN EACH ADDITIONAL LEVEE (I.E l IS NOT RESET TO 1 AFTER EACH LEVEE) |

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   1-4       lvsp(l,1)                      I4      location (column) of grid cell on upstream side (storage area side)
                                                          of levee
   5-8       lvsp(l,2)                      I4      location (row) of grid cell on upstream side (storage area side)
                                                          of levee
   9-12      lvsp(l,3)                      I4      option for path of flow:
                                                          1 - grid cell to borrow canal
                                                          2 - borrow canal to grid cell
                                                          3 - borrow canal to borrow canal
                                                          4 - grid cell to grid cell
   13-14     blank                          2X
   15-19     borrow_cnl_name_upstrm         A5      name of borrow canal on storage side of levee
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        *** NOTE: lvsp(l,4) IS SUBSEQUENTLY SET TO INDEX OF borrow_cnl_name_upstrm IN cnm 1-D ARRAY ***

20-21     blank                    2X
22-26     borrow_cnl_name_dnstrm  A5      name of borrow canal on east (LEC) side of levee

        *** NOTE: lvsp(l,5) IS SUBSEQUENTLY SET TO INDEX OF borrow_cnl_name_dnstrm IN cnm 1-D ARRAY ***

27        blank                    1X
28-31     lvsp(l,6)                I4      location (column) of grid cell on downstream side of levee
                                               (side receiving levee seepage)
32-35     lvsp(l,7)                I4      location (row) of grid cell on downstream side of levee
                                               (side receiving levee seepage)
36-39     lvsp(l,7)                I4      index describing orientation of levee
                                               1 - levee oriented north-south
                                               2 - levee oriented east-west
                                               3 - levee oriented diagonally


RECORD 4: FREE FORMAT
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        lvseep_divers_str_name(l)               name of diversion structure
        lvseep_pump_cap(l)                      capacity of diversion structure
        opt_dest_lvseep(l)                      option for destination of flow
                                                1 - grid cell
                                                otherwise - canal
        frac_seep_divers(l,1)                   dry season fraction to divert
        frac_seep_divers(l,1)                   wet season fraction to divert


RECORD 5A: FREE FORMAT - INPUT IF OPT_DEST_LVSEEP(L) .EQ. 1
-----------------------------------------------------------

        no_dest_lvseep(l)                       number of grid cell destinations for diversion structure

    ***  NOTE: THE FOLLOWING TWO FIELDS ARE REPEATED ON THE SAME RECORD FOR I=1,NO_DEST_LVSEEP(L)  ***

        icol_dest_lvseep(i)                     location (column) of destination grid cell
        irow_dest_lvseep(i)                     location (row) of destination grid cell


RECORD 5B: FREE FORMAT - INPUT IF OPT_DEST_LVSEEP(L) .NE. 1
-----------------------------------------------------------

        no_dest_lvseep(l)                       number of canal destinations for diversion structure

    ***  NOTE: THE FOLLOWING FIELD IS REPEATED ON THE SAME RECORD FOR I=1,NO_DEST_LVSEEP(L)  ***

        dest_canal_name_lvseep(i)               name of destination canal
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| IMPORTANT:  IN UNIQUE CASES, SPECIAL CODE EXISTS IN THE SUBROUTINE LVSEEP.F WHICH MODIFIES THE INTERPRETATION OF |
|            THE ABOVE INPUT (SEE LVSEEP.F FOR COMPLETE DETAILS)                                                   |
|                                                                                                                 |
| (1) THE TOTAL CALCULATED LEVEE SEEPAGE IN THE SEGMENT OF THE L31N LEVEE WHICH FLOWS FROM GRID CELL R22C26 TO THE |
|     L31NC CANAL IS SPLIT  BETWEEN TWO DESTINATIONS: (L31NC CANAL) AND (C4 CANAL OR C4W CANAL). IF THE C4W CANAL  |
|     DOES NOT EXIST (AS IN THE 1995 BASE), THEN 75% OF THE LEVEE SEEPAGE IS SENT TO THE L31NC CANAL AND 25% OF    |
|     THE LEVEE SEEPAGE IS SENT TO THE C4 CANAL. IF THE C4W CANAL DOES EXIST (AS IN THE RESTUDY D13R), THEN THE    |
|     FRACTION OF LEVEE SEEPAGE SENT TO THE L31NC CANAL RANGES BETWEEN 75% AND 90% (DEPENDENT ON THE C4W CANAL     |
|     STAGE) WITH THE REMAINING SEEPAGE SENT TO THE C4W CANAL.                                                     |
|                                                                                                                 |
| (2) THE TOTAL CALCULATED LEVEE SEEPAGE IN THE SEGMENT OF THE L30 LEVEE WHICH FLOWS FROM GRID CELL R27C27 TO THE  |
|     L30 CANAL IS SPLIT BETWEEN TWO DESTINATIONS: L30 CANAL AND SNCRE CANAL. IF THE LAND SURFACE ELEVATION AT     |
|     GRID CELL R26C28 IS GREATHER THAN 0.0 (I.E. NO DEEP RESERVOIR PRESENT), THEN 40% OF THE LEVEE SEEPAGE IS     |
|     SENT TO THE L30 CANAL AND 60% OF THE LEVEE SEEPAGE IS SENT TO THE SNCRE CANAL. IF THE LAND SURFACE ELEVATION |
|      AT GRID CELL R26C28 IS NOT GREATHER THAN 0.0 (I.E. DEEP RESERVOIR IS PRESENT), THEN ALL OF THE LEVEE SEEPAGE|
|      IS SENT TO THE L30 CANAL.                                                                                   |
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3. GROUNDWATER CURTAIN WALL DEFINITIONS

     *** NOTE: THE FOLLOWING THREE RECORDS ARE REPEATED UNTIL THE END OF THE FILE IS REACHED ***

   RECORD 6: FORMAT(2I5)

   1-5   icol_cw   I5   location (column) of grid cell with curtain wall
   6-10   irow_cw   I5   location (row) of grid cell with curtain wall

   RECORD 7: FORMAT(3X,5(A1,1X))

       *** NOTE: NODE_CW = ICOL_CW - MINX(IROW_CW) + 1 + ISUM(IROW_CW) ***

   1-3   blank   3X
   4   borient(node_cw,i=1)   A1   application of groundwater curtain wall to eastern
                                                     face of grid cell (E => yes ; O => no)
   5   blank   1X
   6   borient(node_cw,i=2)   A1   application of groundwater curtain wall to western
                                                     face of grid cell (W => yes ; O => no)
   7   blank   1X
   8   borient(node_cw,i=3)   A1   application of groundwater curtain wall to northern
                                                     face of grid cell (N => yes ; O => no)
   9   blank   1X
   10   borient(node_cw,i=4)   A1   application of groundwater curtain wall to southern
                                                     face of grid cell (S => yes ; O => no)

   RECORD 8: FORMAT(2X,4(2I1,1X))

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    1-2         blank                         2X
    3           icurtw_opt(node_cw,i=1,j=1)   I1      dry season operation for eastern face of grid cell
                                                          ( 1 => yes ; 0 => no )
    4           icurtw_opt(node_cw,i=2,j=1)   I1      wet season operation for eastern face of grid cell
                                                          ( 1 => yes ; 0 => no )
    5           blank                         1X
    6           icurtw_opt(node_cw,i=1,j=2)   I1      dry season operation for western face of grid cell
                                                          ( 1 => yes ; 0 => no )
    7           icurtw_opt(node_cw,i=2,j=2)   I1      wet season operation for western face of grid cell
                                                          ( 1 => yes ; 0 => no )
    8           blank                         1X
    9           icurtw_opt(node_cw,i=1,j=3)   I1      dry season operation for northern face of grid cell
                                                          ( 1 => yes ; 0 => no )
    10          icurtw_opt(node_cw,i=2,j=3)   I1      wet season operation for northern face of grid cell
                                                          ( 1 => yes ; 0 => no )
    11          blank                         1X
    12          icurtw_opt(node_cw,i=1,j=4)   I1      dry season operation for southern face of grid cell
                                                          ( 1 => yes ; 0 => no )
    13          icurtw_opt(node_cw,i=2,j=4)   I1      wet season operation for southern face of grid cell
                                                          ( 1 => yes ; 0 => no )

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END OF DESCRIPTION FOR INPUT FILE "levee_spg_input.dat"
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